

ABSTRACT

An architecture for programmable network servers is described. The programmable network server is capable of executing software modules resident on its hardware to support assorted applications and network management services. Modules may be dynamically loaded, unloaded, or modified to facilitate service changes without interrupting network traffic routed through the device. Module unloading and loading can be administered remotely, via a network backbone, service provider network, LAN, or other internetwork coupled to the device. Alternatively, administrators can change the operating parameters of individual management modules via the network to affect performance gains or modify existing operating requirements. In embodiments of the invention, the network application server may reside at the edge of a service provider network and fan out to subscriber LANs. Alternatively, the network application server may be located at a customer site and connect to the service provider network via the customer's Local Area Network. The network application server may tunnel to the service provider network via a Virtual Private Network, or VPN. The architecture allows service providers to administer network application servers and upload new modules remotely. Modules may emulate legacy systems, provide VPN services such as tunneling protocols, support network management functions, or provide new types of applications developed by network service providers or third party developers. By allowing service providers to administer the network servers

remotely, the invention pre-empts the necessity of allocating service provider personnel to subscriber sites.